REMARKS

1. STATUS OF THE CLAIMS

Claim 23-43 are pending in the application. Claim 43 is independent. Claims 23, 33-37, 38, 39, 40, and 43 stand rejected under 35 U.S.C. 103(a) over Yarber; Claims 25, 27 and 30 stand rejected under 35 U.S.C. 103(a) over Yarber, further in view of Hopkins and further in view of ordinary skill; Claims 26 and 28 stand rejected under 35 U.S.C. 103(a) over Yarber, further in view of Hoag; Claims 43 and 29 stand rejected under 35 U.S.C. 103(a) over Yarber; Claims 31 and 32 stand rejected under 35 U.S.C. 103(a) over Yarber, further in view of Brainard; Claims 41 and 42 stand rejected under 35 U.S.C. 103(a) over Yarber, further in view of Yanase. Each of these rejections is respectfully traversed for the reasons set forth below.

2. INDEPENDENT CLAIM 43 IS PATENTABLE OVER YARBER

A. THE PRESENT INVENTION

Independent claim 43 is directed to a device which operates as both a wheel/hub motor generator and an electromagnetic braking system in aircraft landing gear. At least one of the nosegear or main landing include a nonrotational base portion which connects to the airframe of the aircraft. Stators are connected to the base portion and rotors are connected to wheel, which is rotationally connected to the non-rotational base portion. The rotors and stators each generate magnetic flux, and are configured such that as the wheel rotates, the rotors rotate with respect to the stators such that interaction of their magnetic fluxes causes at least one of: converting electrical energy to rotational torque energy of the wheel, and converting rotational torque energy of the wheel to electrical energy of a magnitude suitable for use to decrease the rotational velocity of the wheel.

B. YARBER FAILS TO TEACH OR SUGGEST THE CLAIMED INVENTION

Yarber is neither an electromagnetic braking system nor a wheel/hub motor generator for aircraft landing gear. Rather, Yarber is directed to a control system for a friction disc braking system. Part of Yarber's disclosed control system generates a low-level electrical signal. However, the electrical signal generated is not electrical energy of a magnitude suitable for use to decrease the rotational velocity of a wheel. In column 20, lines 38 through 59, Yarber discusses the generation of alternating current voltage that is proportional to the wheel speed; this small voltage is rectified and used as a control signal (not a power signal) to define the rotational velocity of the wheel to allow control of hydraulic actuation of his friction disk braking system. In other words, what Yarber teaches is a sensing system which incorporates the use of physically small electrical generators that are adapted for sensing, not adapted for power generation.

Thus, Yarber fails to teach or suggest the claimed pluralities of stators and rotors configured so that interaction of their magnetic fluxes causes at least one of: converting electrical energy to rotational torque energy of the wheel, and converting rotational torque energy of the wheel to electrical energy of a magnitude suitable for use to decrease the rotational velocity of the wheel.

It is well established that, in order to show obviousness, all limitations must be taught or suggested by the prior art. In Re Royka, 180 U.S.P.Q. 580, 490 F.2d 981 (CCPA 1974); MPEP § 2143.03. It is error to ignore specific limitations distinguishing over the references. In Re Boe, 184 U.S.P.Q. 38, 505 F.2d 1297 (CCPA 1974); In Re Saether, 181 U.S.P.Q. 36, 492 F.2d 849 (CCPA 1974); In Re Glass, 176 U.S.P.Q. 489, 472 F.2d 1388 (CCPA 1973). Applicant therefore respectfully requests that the rejection of Claim 43 under 35 U.S.C. 103(b) over Yarber be withdrawn.

Applicant agrees with the Examiner that functional language is often nonlimiting in apparatus claims. For example, in the claim limitation "a conical container top for dispensing

popped popcorn" the "for dispensing popped popcorn" language is non-limiting. *See* In re Schreiber, 128 F.3d. 1473 (Fed. Cir. 1997).

However, Applicant respectfully asserts that the following language of claim 43 is structural in nature because it recites structural configurations:

> ....a plurality of rotors connected to the wheel and configured to rotate with respect to said stators...
>
> ...wherein each of said pluralities of stators and rotors is configured to generate a magnetic flux....
>
> ...said stators and rotors are configured so that interaction of their magnetic fluxes causes at least one of: converting electrical energy to rotational torque energy of the wheel, and converting rotational torque energy of the wheel to electrical energy of a magnitude suitable for use to decrease the rotational velocity of said wheel...
>
> (Emphasis added)

D. YARBER WOULD BE INOPERABLE IF MODIFIED

It is generally settled law that a change in a prior art device which makes the device inoperable for its intended purpose cannot be considered to be an obvious change. Hughes Aircraft Co. v. United States, 215 USPQ 787, 804 (Ct. Cl. Trial Div. 1982), *aff'd in part, rev'd in part*, 717 F.2d 1351, 219 USPQ 473 (Fed. Cir. 1983). See also In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125 (Fed. Cir. 1984) (finding no suggestion to modify a prior art device where the modification would render the device inoperable for its intended purpose).

At least by virtue of the fact that the small amount of energy generated by Yarber's generators would be insufficient to decrease the rotational velocity of his wheel, Yarber would be

inoperable if utilized for the present invention as claimed in claim 43. Conversely, if Yarber's generators were modified to provide an electrical power signal of a magnitude suitable for use to decrease the rotational velocity of his wheel --which Yarber absolutely does not teach or suggest-- then the modified Yarber device would be inoperable for its original intended purpose of generating electrical control signals and using such signals in a control system. The § 103 rejections over Yarber, and over Yarber in view of Hopkins, Hoag, Brainard, and Yanase, must be withdrawn accordingly.

D. YARBER TEACHES AWAY FROM THE CLAIMED INVENTION

As is set forth above, modification of Yarber to provide the invention as claimed would result in a device which is inoperable for either Yarber's intended purpose or that of the present invention. An inoperable modification of a prior art device teaches away. In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). If when combined, the references 'would produce a seemingly inoperative device,' then they teach away from their combination. In re Sponnoble, 405 F.2d 578, 587, 160 USPQ 237, 244 (CCPA 1969).

The Court of Appeals for the Federal Circuit has consistently held that it is "error to find obviousness where references 'diverge from and teach away from the invention at hand'." In re Fine, 5 USPQ 2d, 1596, 1599 (Fed. Cir. 1988). A prima facie case of obviousness can be rebutted if the applicant ... can show "that the art in any material respect taught away" from the claimed invention. In re Geisler, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997) (quoting In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)). A reference may be said to teach away when a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the path that was taken by the applicant. Tec Air, Inc. v. Denso Mfg. Mich. Inc., 192 F.3d 1353, 1360, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999)."); Mentor H/S, Inc. v. Medical Device

Alliance, Inc., 244 F.3d 1365, 58 USPQ2d 1321, 1328 (Fed. Cir. 2001); Ecolochem, Inc. v. Southern California Edison Co., 227 F.3d 1361, 1379, 56 USPQ2d 1065, 1079 (Fed. Cir. 2000), *cert. denied*, 532 U.S. 974 (2001).

Because Yarber would be inoperable if modified in accordance with the present invention, Yarber teaches away from the present invention as claimed and is inapplicable as a reference. The § 103 rejections over Yarber, and over Yarber in view of Hopkins, Hoag, Brainard, and Yanase, must be withdrawn accordingly.

2. THE DEPENDENT CLAIMS ARE LIKEWISE PATENTABLE

The Court of Appeals for the Federal Circuit has consistently held that where a claim is dependent upon a valid independent claim, the independent claim is *a fortiori* valid because it contains all the limitations of the independent claim plus further limitations. See, e.g., Hartness Intern. Inc. v. Simplimatic Engineering Co., 819 F.2d 1100, 1108 (Fed. Cir. 1987). Applicant reasserts the arguments above for each of Claims 23-42, and respectfully requests that the rejections thereof be withdrawn in view of the patentability of the independent claim from which they depend.

3. CONCLUSION

Having responded to all objections and rejections set forth in the outstanding Office Action, it is submitted that claims 23-43 are in condition for allowance and Notice to that effect is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or

personal interview will facilitate allowance of one or more of the above claims, he is courteously requested to contact applicant's undersigned representative.

Respectfully submitted,

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